D. FOLSOM

The Potato News Bulletin

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POTATO NOTES

Shafter, California, May 23.—This section, located in the lower end of San Joaquin Valley, near Barkersfield, is a new potato district, the land having been reclaimed from desert only three to four years ago. The acreage is about the same as last year, about 1200 acres, but the crop will be from one to two weeks earlier than usual. The condition of the crop is excellent in most places, some of the best fields being expected to go around 250 sacks per acre. A small acreage is being dug early, but the bulk of the crop will move during June. Shipments from this section follow the movement of the Garnets from San Francisco and precede the early shipments from the Los Angeles district. The White Rose variety is exclusively grown at Shafter. Three stocks of seed were in the Shafter district this year, and the difference between one of these, certified seed from Southern California, and the other two uncertified stocks, is striking. The former has no varietal mixture and comparatively little disease, while the latter are badly mixed with British Queens and American Wonders and show considerable mosaic.

The soil of the Shafter district is fine sandy loam, and produces clean, bright, smooth potatoes. Yields are good if planted early enough to mature before very hot weather. The crop is irrigated every six days the latter part of the growing season, and between two and three acre-feet of water are used for the crop. The growers in the Shafter district are planning to grade their crop this year and ship a strictly No. 1 grade, subject to State-Federal shipping point inspection. Mr. F. A. Linnwood of the State Department will again have charge of this inspection. New sacks will be used in marketing the crop this year.—**J. T. Rosa, Jr.**

Stockton, California.—The acreage in the Delta is said to be about the same as last year, 26,000 acres. The crop is, however, earlier and in better condition than last year. Some late plantings, intended for seed purposes, are still going in. One favorable feature this year is the practical absence of aphids. The lady

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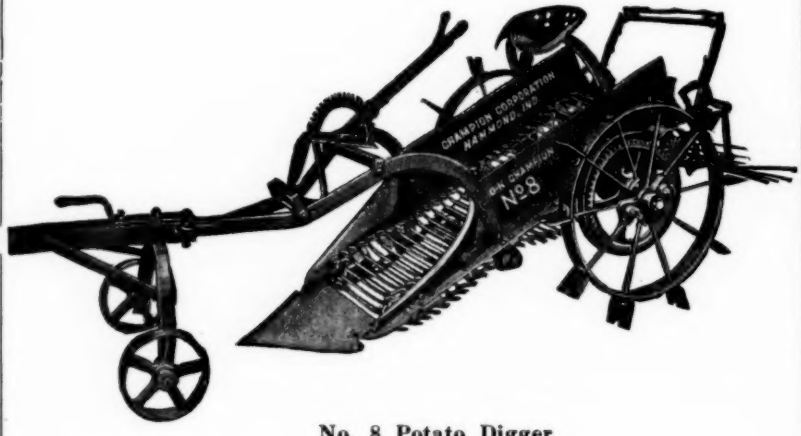

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beetles were on the job as early as February this year, and have kept the aphids in check effectively. Counts of some fields in the Delta planted with locally grown seed (second-year Wisconsins) revealed the fact that about 23 per cent of the plants were infected with mosaic, and there was some varietal mixture as well. Evidently the yield will be much reduced where such seed was planted. **—J. T. Rosa, Jr.**

Kansas. — The Kaw Valley potato growers have planned to hold their annual potato tour June 2 to 6. The tour, as arranged, takes in Wyandotte County on the 2nd; Johnson and Leavenworth Counties on the 3rd; Douglas County on the 4th; Jefferson County on the 5th; and Shawnee County on the 6th. An interesting program has been prepared for each day of the trip.

Regarding conditions in the Kaw Valley at the present time will say, that the crop as a whole looks a little better than it did at this time a year ago which, however, is not saying very much. The fields visited last week include the major part of the valley and the stand is quite uneven, and in some cases the stand is poor. A few exceptionally good fields were seen, the best field I believe being that of John W. Taylor, Edwardsville. The big factor in poor stands this year have been rhizoctonia. In fact untreated seed shows from 60 per cent to 100 per cent infected, while treated seed shows from 4 to 10 per cent, so that the stand in treated seed is very much better than that of untreated.

The hot formaldehyde treatment seems to be a little more effective than the corrosive sublimate. It is very gratifying to see the interest that is being taken in the treatment and we will be glad to have anyone who is interested attend our potato tour June 2nd to 6th. — **E. A. Stokdyk.**

Aroostook County, Maine. — According to latest information received from Aroostook County, Me., the cold, unfavorable spring has delayed planting to an unusual extent, with the result that the farmers will be obliged to work overtime, reduce their acreage, or plant some of their potatoes later than usual. Late planting is naturally fraught with some danger, on account of the fact that the soil at that time is more likely to be dry, and because of the short growing season. If the soil is dry at the time of planting, it will be necessary that the potato growers take special pains to see that the attachments of their planters, designed to mix the fertilizer with the soil, are used and are in proper condition.

In Long Island, the two-row fertilizer distributor which mixes the fertilizer and the soil is followed up with a two-row planter. This system of planting has been found to be necessary in that district, in order to get the best results and to avoid possible contact of the fertilizer and the seed potatoes. Unfortunately similar

conditions may arise even in Aroostook County, when rather long dry periods occur before the end of the planting season.

It has been found that when pieces of seed potato are brought in contact with fertilizer in a dry soil, the fertilizer takes moisture away from the seed piece to its injury; and the better and more effective the fertilizer under normal conditions, the greater the danger that is likely to occur when improper planters are used, in an especially dry time. — **Dr. H. J. Wheeler.**

New Brunswick. — Planting commenced in the earliest sections of the province about May 1st, but general planting will not be in full swing until the last week of May or first week of June. The season has been backward, and we have had little rain.

Indications point towards a general increase in the acreage planted to certified seed in the province this year. This will be most noticeable in the Irish Cobblers; Green Mountains will be up to the usual acreage.

More growers are practising seed treatment this year than heretofore, due chiefly to the desire of trying to eliminate as much rhizoctonia and blackleg as possible. Corrosive sublimate is the most popular treatment.

Special efforts will be made this year to commence field inspections earlier than usual. In 1923 it was difficult to get a satisfactory second field inspection on Cobblers in some sections as the tops died down quite early. We are endeavoring to plan for a second field inspection shortly after full bloom, if not at full bloom, on all varieties in order that, where necessary, a third field inspection can be made. Such inspection should give us more reliable reports. There are practically no changes in the field inspection standards for 1924 from those used in 1923.—**J. F. Hockey.**

Lincoln, Neb. — The seed potato cetification work in Nebraska has been transferred to a committee of the Potato Improvement Association to be known as the Nebraska Seed Potato Certification Board. This Board will be responsible for the administration of the work including the inspection, certifying and financing. The College of Agriculture is continuing its connection with the work by co-operating with the Board in recommending standards, in recommending and training inspectors, also in conducting trials of all lots of potatoes certified as a means of checking up on the desirability of the standards used and the quality of the inspection work. Mr. Wm. Morrow has been chosen by the Board as Certification Manager. He will be in charge of all the inspection and administrative work, with headquarters at Alliance, Neb.

Some new features are being added to the certification work in Nebraska this year. During the past winter all of the lots certified last year and 69 lots that were rejected for certification, — making a total of 188 lots of seed, — were planted on the grounds of the Louisiana Experiment Station at Baton Rouge. Mosaic

readings were made in these plats during the latter part of April. These readings have been used as a basis for advising growers concerning any unfavorable conditions that were found to exist in their seed stock.

Duplicate samples of all these lots of seed were planted in Scotts Bluff County in western Nebraska on May 12th to 14th. In addition to the lots planted in the south 51 additional lots of seed were planted in the Scotts Bluff plat. These additional lots of seed represent seed stock which is being used for the first time by growers applying for certification. They are being planted in this trial plat approximately five weeks earlier than the normal planting date for the purpose of enabling the inspection service to make a satisfactory mosaic reading during the latter part of June or before the field inspection service begins and while the temperature is still low and favorable for mosaic readings. Growers applying for certification are required to submit samples of this kind or required to plant certified seed so that the inspectors will have considerable knowledge of the seed stock before making a field inspection. If any lots of potatoes show more than 10 per cent of mosaic in these trial plats, the applications for the inspection of fields planted with such stock will be cancelled. By this means it is hoped to eliminate many of the poor fields without going to the expense of making a trip to the field.

Almost all of the fields concerned with certification in Nebraska are planted with Triumph potatoes.

As a result of the unsatisfactory market conditions prevailing last fall, the seed potato growers are taking active steps to prevent as much as possible a repetition of such conditions. They are organizing the "Nebraska Certified Potato Growers, Inc." It will be the function of this organization to control certification and sale of all certified seed potatoes. When this organization is completed, certification work will be transferred to it from the present certification board of the Nebraska Potato Improvement Association.—**H. O. Werner, Agr. College, Lincoln, Nebr.**

New Jersey.—The potato acreage has been reduced approximately 15 per cent and the crop has been delayed several weeks by the cold, wet weather during May. Despite the unfavorable growing conditions which have existed, a good stand is promised. Several sections have reported some rotting of the seed in low areas, but this condition is by no means general. In the Robbinsville section, where a considerable portion of the seed was disinfected with corrosive sublimate before planting, the growers report a much better stand from the treated than from untreated seed.

In the comparison of northern and southern grown seed, the former came up a week or ten days ahead of the latter in the case of the Irish Cobbler variety, while little difference was noted

in the time of germination of northern and southern grown Green Mountains.—**W. H. Martin.**

New Jersey.—Potatoes in Middlesex County are just nicely out of the ground. There seems to be a normal stand except in low spots where continued rains have caused some rotting. The acreage is from ten to fifteen per cent less than last year. Practically all of the potatoes planted were Green Mountains and Cobblers with a few Giants and a few Russet Rural. The proportion of certified seed used was larger than ever before.

The first potato spray ring to be formed in Central Jersey was recently organized in the Cranbury section under the direction of the Middlesex County Farm Bureau and Dr. W. H. Martin, State Plant Pathologist. Six men will spray a total of about 72 acres, using home-made Bordeau mixture.—**O. G. Bowen.**

New Jersey.—Salem County has about a 10 per cent shrinkage in potato acreage due to the poor returns received from the commercial crop the past two years. Most of the seed planted is home grown stock, only a small per cent of the total acreage bing planted with Maine seed. The present indications are that there will be a good stand, but the heavy rain has compacted the ground and the crop in many cases is being farmed before it is up.—**J. Gilbert Borton.**

New Jersey—The wet weather is having a bad effect on some fields that are low and poorly drained. Some of the sprouts decay at the surface of the ground while the seed piece remains whole and apparently sound. Very little cultivating has been done and growth is much retarded. No insect attacks are noted, except the presence of considerable numbers of Colorado beetles.—**Wm. B. Duryee.**

Salem County, N. J.—In checking up the acreage of early potoes in South Jersey, I find that the acreage will be reduced at least 15 per cent this year and definite figures that I have on some 100 growers show an even larger reduction.

The season has been unusually late. It is now three weeks behind the average season. Although most potatoes are up and show a stand of approximately 80 per cent, there are a good many fields that are not up sufficiently to distinguish the rows. This is very unusual for June 1st in South Jersey. If weather conditions remain favorable from now on we should have a fairly good crop of potatoes, but they will be marketed from August 5th on, rather than from July 25th on, as heretofore.

We have had rain every day during May, with the exception of four days, and there seems to be no possibility that the weather will change in the near future. Just how our delayed season will

fit in with other potato sections, it is hard to estimate under the present condition.—**J. C. Crissey.**

Long Island, N. Y. — Plans are already under way for the annual Long Island Potato Tour through parts of Nassau and Suffolk Counties and dates have been set for Wednesday, Thursday and Friday, June 25, 26 and 27.

This tour, which is coming to be looked upon by many seed potato growers as an opportunity to get in touch with a prospective market for their seed, and better acquainted with Long Island growers, is being conducted under the auspices of the potato improvement committees of the Farm Bureaus in the two counties. One of the primary purposes of the tour is to bring together seed potato growers, dealers, and the potato growers of Long Island who are buyers of thousands of bushels of seed annually.

While so much of Nassau County's potato crop is shipped by motor truck that rail shipments are comparatively light in that county, an indication of the size of the potato industry on the Island may be had from the following statement regarding Suffolk County, which does ship a considerable proportion of its crop by rail, viz., that of the 27 principal loading points in New York state, which shipped over 175 cars in the year 1922-23, figures show that 13 of these 27 loading points are located in Suffolk County.

The first day of the tour is to be spent largely in Nassau County and the latter two days of the tour in potato-producing sections of Suffolk County. Among points of interest to be visited are the large potato seed strain demonstrations in both counties, a visit to the Long Island Vegetable Research Farm, the State Institute of Applied Agriculture at Farmingdale. It is planned to make the speakers' program this year one of the finest the tour has ever enjoyed. — **A. H. C. Odell, Nassau County; C. R. Inglee, Suffolk County.**

Vermont. — So far as indications go the introduction of electric fans in the potato warehouse last winter was a great success. We were able to control moisture condensation at will. On the occasions when bins were filled with wet potatoes the operation of the fans dried them off quickly. We could feel the current of air through a 15-foot bin.

The potatoes have never been in as good condition as they were this spring. Out of the 12,000 bushels stored there were less than a dozen bushels of rot, and only a small proportion of this was wet rot.

The tubers are firm and unsprouted, — apparently in the pink of condition. We are now treating our seed and as soon as the tubers are brought out into a warm room, they show prompt evidences of vitality. On this account as soon as they dry off after their treatment they are put in the basement of the storage house. The temperature of the basement is being lowered by the use of

fairly large quantities of ice. In this way we hope to keep the sprouting under control right up to planting.

In turning over "Strain Sixteen" (Green Mountain) we found and discarded about 7 bushels of spindle tuber. Some selection work was done on this strain last season and we now have a little over a bushel of especially selected tubers which it is hoped will combine the good points of the strain and at the same time be entirely free from spindle tuber. If we succeed it will not take us long to develop a quantity of stock; but if we should fail we will try again. But even with strain 16 we do not wish to put all of our eggs in one basket, so we are planting a goodly proportion of our acreage with a strain from Lewis Du Bois, of Bethel, Vt. We have been testing the Du Bois strain for the past two seasons. Last season this strain acted rather oddly, coming perfectly from mosaic on the Du Bois farm while our farm showed about 4 per cent of mosaic. We are curious to know what it will do this season.

Plans are being made to hold a field day on August 5 for county agents and potato growers. — **Julian A. Dimock, East Corinth, Vt., May 14.**

Virginia. — In many areas in Eastern Virginia the potato crop has suffered severely from the heavy rainfall this month. From May 7 to May 27, 9.35 inches of rainfall were recorded at the Virginia Truck Experiment Station. Potatoes on high, well drained, sandy, light soils, low in organic matter fertility, in many cases are making a very poor growth. This is very likely due to the fact that most of the available nitrogen applied in the fertilizer has been leached from the soil. On the heavier types of soil, the top growth is excellent but the tubers are developing slowly due to the saturated condition of the soil.

On the southern end of the Eastern Shore from Cape Charles to Kiptopeake the crop promises to be an excellent one unless the heavy rainfall tends to cause the potatoes to rot in the ground. In the northern end of Northampton County and in Accomac County, the potatoes on the lighter types of soil are making a rather spindling growth and small leaves are showing poor color but the crop has not been as seriously injured as in the vicinity of Norfolk where the heavy rains have occurred.

The commercial fertilizers containing a large percentage of nitrate of soda as a source of nitrogen are making a poor showing on the lighter soils. In the source of ammonia experiments carried on at the Virginia Truck Experiment Station, the plants on the plats which received all nitrogen from nitrate of soda are making a very weak, pale green growth. On the very light types of soil they appear as though no fertilizer had been applied. The fertilizers, high in organic nitrogen, such as tankage and fish, are giving excellent results.

Since nitrate of soda has been the cheapest source of nitrogen during the past two years, some of the fertilizer companies have

used a large per cent of this material and cut down on the high grade organic materials such as fish and tankage. This was apparent last year in the results obtained where a 7-6-5 goods mixed for the Farm Bureau according to the Virginia Truck Experiment Station formula was compared with 7-6-5 goods sold by eight different fertilizer companies. Eight plats fertilized with Farm Bureau 7-6-5 goods were compared with alternate plats fertilized with the materials sold by eight commercial concerns. The yield from the Farm Bureau plats average about 20 per cent more prime potatoes than were secured on the other plats and in one case gave an increase of 35 per cent over that secured on the adjacent commercial plats. Some of the commercial lots gave very good results but in no case did they exceed the yield secured on the Farm Bureau plats. At the request of the Farm Bureau, this test is being repeated this year and the plats will be inspected by the farmers of the Eastern Shore at the time of the potato tours in June.—**H. H. Zimmerly, Va. Truck Exp. Sta., Norfolk, Va.**

Washington. — The following instances in potato culture have come to my attention within the last six weeks in my extension work. The first, is that of A. J. Schold of Silverdale, Kitsap County, Washington. Last year Mr. Schold secured some certified Netted Gem potato seed and from them produced some excellent potatoes. Mr. Schold put them up in 6-pound packages which he sold at the Bremerton farmers' market for 25 cents, or at the rate of $83.41 per ton. It was with great difficulty that Mr. Schold was able to keep enough Netted Gems for his own seed. When he put some of his other varieties on the market, under similar conditions, he could not sell them. The thing that I believe is brought out in this example is first:—the seed was properly treated and was as free from mosaic as could be expected so that he got a fair yield; in the second place, Mr.Schold did very careful grading. In this connection it must be borne in mind that Mr. Schold's neighbors could not sell their potatoes because they raised varieties that were not recommended by the State College. Another fact to be borne in mind in connection with this is that we frequently have the objection raised by West Side farmers that Netted Gems could not be raised west of the Cascade Mountains. Although the Netted Gems raised by Mr. Schold did not yield him quite as much as other varieties he at least was raising a variety that the market demanded and it netted him more than the other higher yielding varieties.

The need of properly treating seed for disease control and the use of certified seed, together with the grading of potatoes, is rapidly spreading in West Side counties. Recently a potato organization was organized in Whatcom County. This organization proposes to put out fancy graded potatoes and guarantee the quality of each grade put out. In Snohomish County they are starting with three communities that are organizing potato associations and the

use of disease-free seed will be stressed, and in the fall proper packaging for market will be insisted upon. In King County the Snoqualmie Potato Growers' Association has been organized. These people have in view the standardization of varieties, the use of high grade seed, seed treatment and proper grading for market. Recently a survey of Douglas County showed that in the Badger Mountain section we have an ideal potato area where high-grade potatoes can be raised. This is a section that has hitherto been absolutely neglected. The County Agent is endeavoring to organize a small potato growers' association. They have an ideal market in Wenatchee. Every year Wenatchee ships in several hundred carloads of potatoes and part of this demand can be supplied right at their very door. As a result of demonstrations in Douglas County a few years ago the County Agent this year was able to produce two carloads of certified seed. The demonstrations showed that the yield per acre would be increased from four to five times by using certified seed.

Certified seed is very scarce in Washington this year and practically all of our supply has been used up and three or four times as much could be used if it were available.—**George L. Zundel, Extension Plant Pathologist, Pullman, Washington, May 13.**

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NOTES ON RECENT LITERATURE

ANONYMOUS. — Exchange secures finances for 1924. — ***Colorado Potato Grower* 1: *6, May, 1924.*** — The Colorado Potato Growers Exchange has made arrangements with the First National Bank of Denver for financing the 1924 potato crop to the extent of $125,000 to $200,000, depending upon the market price of potatoes. In addition to this amount, the Exchange will begin shipping early in July with a cash reserve of approximately $60,000. The Exchange recogninzes the position of the individual grower and expects to pay to the grower or growers loading a car approximately 60 to 75 per cent of the estimated average pool price the day the car is loaded. It is planned to make final settlement for all potatoes shipped in the pool at the end of thirty days after the close of each pool. Arrangements have been made for late or storage pools.—**Walter M. Peacock.**

ANONYMOUS. — Shipments of potatoes and prospects of the early crop. — ***Crops and Markets*, 1: *326, May 24, 1924.*** — The eight early states now shipping forwarded a total of nearly 1,400 cars, or 500 more than the preceding week. Old crop movement also increased slightly, heaviest supplies coming from Maine and Michigan. Latest production estimates for 11 early-potato States are 21,091,000 bushels, compared with 18,708,000 in 1923. Alabama's crop is nearly doubled; Louisiana, North Carolina, and Florida show heavy increases, and Virginia has 8 per cent more than last year.—**Walter M. Peacock.**

ANONYMOUS — North Carolina's early potato crop. — ***Monthly Supplement of Crops and Markets*, 1: *No. 5, May, 1924.*** — Growing conditions for early potatoes have been favorable and with a larger acreage, an increased production over last year can be expected. Movement will begin at Mount Olive and Aurora by June 5 and will be general by the 10th, continuing through the month.—**Walter M. Peacock.**

ANONYMOUS. — The floral parts of the potato as aids in the identification of varieties. — ***The Scottish Jour. Agr.* 7: *187-193, April, 1924.*** — The author prefaces his paper by the statement that " in the identification of varieties of the potato, many botanical features have to be taken into consideration and of these the flowers and fruit are of great importance." The varying length of the penducle of the flower cyme and the pedicels of the flowers and their coloration are distinguishing characters. The Up-to-date and British Queen are cited as varieties having long and fairly dark peduncles and pedicels, while Royal Kidney and Aaron Chief have short and light colored ones. Leafy bracts on the inflorescence stalks is also common to some varieties. Hairiness of

the inflorescence stalks and their distribution is noted. In some varieties the hairs are numerous, in others few; in some the hairs are adpressed, in others upstanding. Kerr's pink is cited as having numerous adpressed hairs and Reading Russet as possessing few and upstanding hairs.

Irregularity in number of sepals seems to be a characteristic of some varieties. In some varieties the sepals are green, in others they are uniformly colored, while in still others the basal portion may be green and the tips brownish. Hairiness or non-hairiness, long and short hairs, and adpressed versus upstanding hairs are also differentiation sepal characters. In the case of the corolla departure from the normal five-tipped form is noted, size and color of corolla are also of value. Less completely united petals is characteristic of some varieties. Such flowers have a star-like appearance. Several other corolla characters are noted. Two differentiating stamen characters are especially noted: (1) normal symmetrically arranged stamens in columnar form around the pistil, and loosely arranged small twisted stamens; (2) color of anthers. The stigma of the pistil is usually bilobed, but in some varieties three to four lobes may occur. Straight and twisted styles are also varietal characteristics. The seed ball of cultivated varieties varies in size and color. Additional factors discussed by the author are (a) the physiology of the flowers and fruit; (b) the daily blooming period, (c) the pollen, (d) capacity for flower and fruit formation, (e) environmental influences on flower formation.

The article as a whole should prove helpful to the student of potato varieties and although of primary interest to British students, it nevertheless calls attention to flower and fruit characters that can be applied equally well to American varieties.—**W. Stuart.**

ANONYMOUS. — **Potato inspection office at Baton Rouge.** — *La. State Univ. Press Bul.* 13: *No. 14, May 15, 1924.* — J. H. Hoover, supervising inspector of the United States Department of Agriculture, has located his central office at Baton Rouge, La.

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The heaviest movement of potatoes on May 13 was from Terrebonne parish. It is reported that the buyers are much pleased with the grades that are being shipped from this point. So far as known, this is the first time government inspection has been made at shipping point in Louisiana. A competent force has been organized to handle the work.—**W. Stuart.**

DICKEY, J. B. R. — **400-bushel potato men.** — *The Country Gentleman,* 89: *No. 21, May 24, 1924.* — Fifty-four Pennsylvania farmers grew an average of 444 bushels of potatoes on a measured acre and were awarded gold medal watch chains by the Pennsylvannia-Maryland Joint Stock Land Bank. This yield is about four times the average crop for the state of Pennsylvania. Four of these men raised over 500 bushels per acre.

A clover or alfalfa sod furnishes organic matter of the right sort. Thirty-nine of these growers planted potatoes on clover or alfalfa sod. All but two used manure at the average of 8½ tons per acre, most of which being applied in the fall or winter. All but four used commercial fertilizer at the average rate of 825 pounds per acre. The author states that seldom have high percentages of nitrogen and potash proved profitable on good soil where a liberal quantity of fertilizer has been applied.

In variety tests conducted in many counties in Pennsylvania the varieties of the Rural New Yorker group outyielded others, especially in a dry season. Fifty-two of these champion potato producers grew potatoes belonging to this varietal group; two raised the Irish Cobbler variety. The majority planted Michigan-grown seed. The average quantity of seed planted per acre by the above growers was 17.6 bushels. The rows were generally not more than 34 inches apart and plants about 14 inches apart in the row. Close planting gives a minimum of undesirable, oversize tubers.

Fifty-two of these growers sprayed on an average of seven times, using high-pressure machines and three-nozzles to the row.

The author emphasizes the fact that the cost per bushel is a better basis for calculating profits than cost per acre. The cost per acre for these growers was twice the average, but their yields were four times the average. Consequently the cost per bushel should have been only about half of that of the average.

These growers live in twenty-one counties and the soils varied from heavy limestone to shale, sandy gravel and muck. Good soil and climate help, but are not as important as the man and his methods in raising potatoes.—**W. M. Peacock.**

GOSS, R. W. — **Effect of environment on potato degeneration diseases.** — *Neb. Sta. Research Bul. 26, 40 pp. 3 figs., March, 1924.*— The author comments upon the fact that during recent years the investigational work upon degeneration diseases has been largely directed toward the separation and identification of a number of diseases previously grouped under the general terms of

mosaic, leafroll, and "running out." Extensive studies have also been made for the purpose of determining methods of transmission, host range, overwintering, and the identification of the causal factors. In his opinion there is a pressing demand at the present time from the seed growers and inspectors of certified seed potatoes for information and instruction regarding these diseases. This group of men are chiefly concerned with three problems, (1) the recognition of these diseases in the field, (2) their effects upon the yield rate, and (3) methods of control. According to the author's statement the results of the studies presented in the bulletin are believed to contribute to a better understanding of these more practica problems; special emphasis being laid upon the recognition of the diseases in the field. The author conducted his studies in the greenhouse and in the field. Four temperature chambers were used in the greenhous. The temperatures used were 15°, 20°, 25°, and 30° C., or 59°, 68°, 77°, and 86° F. respectively. Plants were transferred from one chamber to another as desired.

The data obtained from both greenhouse and field studies and the deductions made from them are so pertinently presented in the author's summary that it is reproduced below.

SUMMARY

1. The symptoms of potato mosaic in the Bliss Triumph variety are influenced to a great degree by environmental conditions.

2. Temperatures above 70° F. tend to decrease the number and severity of the symptoms, while temperatures below that point increase their visibility.

3. Mottling was found to be the most constant symptom when temperature alone was varied. High temperature with intense sunlight caused the disappearance of this symptom.

4. Wrinkling, curling, and rugosity were eliminated at the higher temperatures on mild mosaic plants.

5. High temperature is a greater factor in masking mosaic symptoms than low moisture or increased sunlight, altho under field conditions all 3 usually occur together.

6. The symptoms of mild mosaic reacted more quickly to environmental factors than the more severe types and the combinations of mosaic and spindle-tuber used in these experiments.

7. The effect of the environment on the symptoms decreased with the increasing age of the plant.

8. Under field conditions mosaic was more severe with early planting while spindle-tuber was more severe in the late plantings.

9. Short periods of 4 to 8 days of high temperature and increased sunlight were found sufficient to eliminate the leaf symptoms of mild mosaic and to decrease those of the more severe types.

10. The symptoms of mild mosaic under certain conditions appeared more serious than the symptoms of the more severe types of mosaic appeared under other conditions that were less favorable for the manifestations of the symptoms.

11. Climatic conditions as noted above can be correlated in commercial fields with:

(a) Changes in the appearance of the symptoms on the plants during the same season.

(b) Changes in the amount of visible mosaic in the same region for different seasons.

(c) Changes in the amount of mosaic found in northern grown seed from Nebraska when planted in the southern states.

12. In view of the data presented in this paper, the author believes that the effect of high temperature, intense sunlight, and low moisture in masking the symptoms of mosaic in western Nebraska is of as great importance as aphid transmission of the disease.

13. In order to select healthy seed, to determine the percentage of mosaic, or to rogue properly, the conditions under which the plants are growing must be considered, and the work done at the most favorable time rather than at any fixed date.

The above summary furnishes convincing evidence of the importance of more frequent inspection of fields entered for certification. The visibility of the disease is so easily affected by climatic conditions as to make a fixed date of inspection of questionable value.—**W. Stuart.**

HEPPE, W. F. — **Improve quality of Colorado potatoes.** — *Through the Leaves*, 12: *246, 247, May 1924*—The author points out that the quality of the Colorado potatoes is deteriorating. Growers and marketing agencies generally agree that something must be done to improve the quality, grade, and pack of Colorado potatoes. The aim of the future must be better seed, better cultural methods and better cropping systems with the end in view of producing a uniform tonnage of better quality potatoes. A uniform tonnage of good quality potatoes will bring greater net income per acre one year with another than a large tonnage of poor quality stock. The lack of quality in many cases is caused by the prevalence of common tuber diseases that seed treatment, proper rotation of crops and cultural methods will practically eliminate. Selling the best stock for market and retaining the culls or small tubers for planing is a big factor in affecting the quality of potatoes.

Figures are given proving the value of certified seed potatoes. Growers are beginning to recognize the desirability of planting better seed and have ordered 13 carloads of certified seed potatoes of the Irish Cobbler, Rural New Yorker, and Russet Rural varieties.—**Walter M. Peacock.**

SANDSTEN, E. P. — **Certified seed is a paying investment.** — *Colorado Potato Grower*, 1: *6, May, 1924.*— The author emphasizes the importance of seed selection and the lack of proper attention to the selection of seed. He states that many growers still plant the potatoes that are left over in spring. Sometimes these are only small tubers. Diseased and degenerated plants usually produce small potatoes. The most destructive potato diseases cannot be detected by a superficial examination. Hence, these growers are continually selecting seed in the wrong direction.

He further points out that if the potato growers would exercise the same care in the selection of seed that they do in the breeding of livestock, the annual yield per acre would be greatly increased.

The certified seed grown in Colorado is practically all shipped into the South, where the value of certified seed has been proved after many years of experience. Recent experiments with certified seed versus common seed in one of the central states gave an average of 30 per cent increase in yield over the common seed.—**Walter M. Peacock.**

IMPORTANCE OF APPEARANCE OF CERTIFIED SEED POTATOES

C. W. Waid

The certified seed potato business has been developing so rapidly in several of the heavier potato-producing states that in some cases there is not as much attention given to the inspection and grading of the potatoes at loading time as there should be.

The field inspection work, as it has been carried on, has raised the standard very considerably. On the other hand the very fact that certain fields are inspected and certified has apparently led some seed growers to believe that the field inspection is all that is needed. As a result it is not an uncommon thing for seed growers to be more or less careless about the manner in which they sort seed when it is to be sold.

The seed grower should realize that the seed buyer has practically nothing but the general appearance of the tubers upon which to pass judgment when he receives his order of seed. Of course some growers will examine the certificate of inspection, but a large majority have not learned to go beyond what the eye can see in making an examination of the quality of the seed. It is a lamentable fact that one carload or lot of inferior-looking tubers may do more to discourage the use of certified seed than can be overcome by the selling of ten or more cars all of which may have a generally satisfactory appearance. Growers are not much inclined to talk about the good quality of the seed they receive as they are about any defects they may notice.

In view of these facts it behooves those in control of the certified seed work in the various states to make every effort possible to have all certified seed potatoes present a good appearance as well as to pass a satisfactory field inspection. In no case should over-grown, irregular, ill-formed or hollow potatoes be certified. All mechanical injuries, and especially those which cause a breaking of the skin, which in turn is quite likely to be followed by dry rot should be eliminated.

FOREIGN REPORTS*

NEW BRUNSWICK GROWERS ORGANIZE A CERTIFIED SEED POTATO GROWERS' ASSOCIATION

Frederick C. Johnson, Vice-Consul, Fredericton, N. B.

On January 24th, 1924, there was organized a Provincial Certified Seed Potato Growers' Association whose activities will be directed towards the promotion of increased production and toward the co-operative marketing of the seed stock.

The potato is the leading agricultural product of New Brunswick, and until the past two years the surplus production was exported in large quantities to the United States.

The loss of the American markets for potatoes has been reported upon by this office in commerce reports dated October 4, 1922, and April 27, 1923.

The potato growers are now turning their attention more particularly to the production of high-grade seed potatoes for which there is a market in the United States. The growers have achieved signal success in the production of two or more varieties of seed potatoes practically free from disease, and the United States markets are being sought for the export of increasingly large quantities.

As a means towards increasing the production and towards cooperating in the marketing of the stock the Minister of Agriculture has been requested to prepare a bill to be presented to the Legislature for the incorporating of the Provincial Seed Potato Growers' Association.

The establishment of such an organization, which has been urged by the Superintendent of the Experimental Farm, as well as by all interested in agricultural pursuits, will be invaluable to the grower in the disposal of his stock.

From 115 to 150 barrels (165 pounds per barrel) is the average production of certified seed potatoes per acre. The certified stock is practically disease free.

*Courtesy of Department of Commerce

DEVELOPMENT OF MARKETS FOR NEW BRUNSWICK POTATOES IN THE WEST INDIES AND IN THE STATES DURING THE SEASON 1923-24

Frederick C. Johnson, Vice-Consul

Fredericton, N. B., March 7, 1924.

Vigorous efforts are being made by the shippers of potatoes in

the Province of New Brunswick, Canada, during the season 1923-24, to build up an export trade in potatoes with the West Indies and with the Southern States, in order to dispose of the surplus stocks, which formerly were sent to the Upper Canadian markets and to the markets of Boston and New York.

The largest shipments to the West Indies are table stock potatoes, although it may be stated that considerable quantities of seed potatoes are being exported to Jamaica and Bermuda.

In the West Indies, seed potatoes are planted in the round, therefore, the stock exported there for seed is usually very small, about the size of an agg.

The amount of table stock exported to the United States is negligible, but a considerable trade in seed potatoes has been developed, the largest shipments being made to Virginia and other Southern States.

One firm has informed this office that they will ship 10,000 barrels of seed potatoes during the present month (March, 1924) to the States of New Jersey and Virginia.

Large shipments of seed potatoes are being made to Bermuda, one firm advises that they have already shipped 1,000 barrels there, another firm advises that, during the course of the next two weeks, 2,500 barrels will be shipped by them to Bermuda.

MARKET FOR POTATOES IN PANAMA

George Orr, Consul

Panama, Dec. 21, 1923.

There is practically no production of potatoes in the Republic of Panama because of the general tropical character of the climate. It would be possible to raise potatoes only in a few sections where the altitude is sufficiently high, as for example in the Boquete region of Chirqui Province. Small potatoes have been produced in Boquete, but not in sufficient quantity to supply the local demand.

Imports.—Except for the limited quantities of potatoes produced as stated above, and in a more or less experimental way, all the potatoes consumed are imported from foreign countries, chiefly from the United States.

Imports received during the years 1921 and 1922, according to figures published by the Statistical Office of the Panama Government, were as follows:

Country	Year 1921		Year 1922	
	Kilograms	Value	Kilograms	Value
United States	1,051,964	$62,305	1,194,065	$51,774
Chile	17,212	553	117,225	2,618
Ecuador	17,369	997	53,628	1,568
Other countries	....	105	19,467	371
Totals	1,086,545	$63,960	1,384,385	$56,331

Restrictions Applicable to Seed Potatoes. There are no governmental restrictions with respect to the importation of potatoes to be used for seed purposes, and Subsection 12 of Article 86 of the Fiscal Code of the Republic of Panama provides that seeds of all descriptions may be imported free of customs duty.

Potatoes to be used for food purposes are subject to an import duty of 10 per cent ad valorem, according to Article 87 of the same code.

IRISH POTATOES

Samuel W. Honaker, American Consul in Charge

Kingston, Jamaica.

There are no statistics available which show the quantity and value of potatoes produced in the Island of Jamaica. The Secretary of the Jamaica Agricultural Society has estimated, however, that the production of potatoes averaged four thousand barrels in 1921, 1922, and 1923.

The foregoing authority states that ten thousand barrels of potatoes were imported in 1922; and the Director of Agriculture for Jamaica has estimated the importations of this product at 1,598,460 pounds in 1921, carrying a valuation of £10,892.

Seed Potatoes.—The total requirements of potatoes for food is stated by the Secretary of the Jamaican Agricultural Society to be fourteen thousand barrels. This official has estimated that five hundred barrels of potatoes are used for seed purposes. The amount of potatoes for seed purposes is placed at eight barrels per acre.

The local price of potatoes to be used for seed purposes ranges from eighteen to twenty-four shillings per barrel, depending upon the period of importation, which is usually from October to March in each year. Potatoes for seed purposes are obtained chiefly from Nova Scotia. They are imported principally on Canadian boats.

Duty and Restrictions.—No restriction, other than the payment of duty, is applied to imports of potatoes for seed purposes, but according to the statement of the Director of Agriculture for the

Jamaican Government, an Order controlling the importation of seed potatoes will be issued in the near future. The preferential rate of duty is seven pence and one half-penny per one hundred pounds; and the general rate, which is applied to all countries other than the United Kingdom and reciprocating colonies is ten pence per pound.

Cultivation of Irish Potatoes.—Irish potatoes are grown in several parts of Jamaica, but the supply does not meet the local demand. The bulk of the potatoes grown for market purposes are produced in the Parish of Manchester, where the upland climate and soil conditions are favorable to their production.

Planting and Cultivation.—The time of planting depends upon the locality. Potatoes are usually planted in November, December, January, and February. The latter month is often very dry in Manchester and it is not regarded as favorable to crops planted in January. In the higher and seasonable parts of the Port Royal Mountains Irish potatoes may be planted in January with considerable success. In the lowlands potatoes are generally planted in November, or as soon after the heavy rains of October as possible.

Small whole potatoes or large potatoes cut into two sets are generally used for seed purposes under ordinary conditions. In dry places or during dry periods it is often necessary to use larger pieces of potatoes which are planted at a greater depth. The seed is usually planted about ten to twelve inches apart in the drills and covered with four inches of earth. A hollow is left in the furrow so that when the young plants appear and reach the height of three to four inches the earth can be drawn into them, leaving the field level. It is customary either to run a plow through the furrow about two weeks later in order to break the earth again and hill up the plants or to use fork and hoe for that purpose. When horse and implements are used the furrows are wider than in the case of cultivation by hand.

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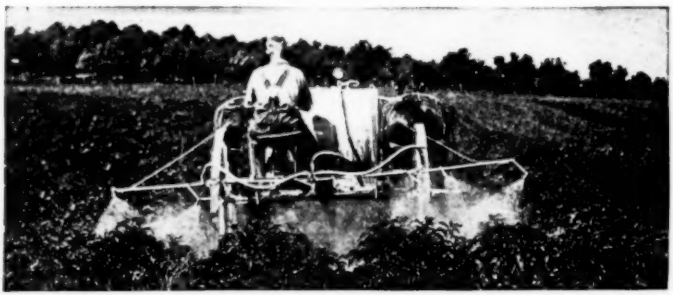

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